



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Wilson, et al.
Serial No.: 09/751,397
Group Art Unit: 1761
Filed: January 2, 2001
Examiner: Tran, Lien Thuy
For: **WAXY WHEAT PRODUCTS AND
PROCESSES FOR PRODUCING SAME**

**DECLARATION UNDER 37 C.F.R. § 1.132
SUBMISSION OF SUPPORTING DATA**

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

I, Lori Ann Wilson, hereby state that:

1. I am one of the inventors of the present application and a person of ordinary skill in the art.

2. I received a B.S. in Food Science and Human Nutrition from Michigan State University in 1980. I began working in the Research and Development area at the Kellogg Company in 1980. For the first 16 years I worked in cereals and cereal processing. For the last 7.5 years I have worked in the Quality area of cereals and cereal processing for the Kellogg Company.

3. This Declaration provides evidence that our (i.e., the Applicants') invention is not obvious to a person of ordinary in the art over Alderman (United States Patent No. 2,526,792) in view of Nakamura et al. (Production of waxy (amylose free) wheats, in Mol. Gen. Genet. 248: 253-259 (1995)) and the book Wheat Chemistry and Technology, edited by Y. Pomeranz, 3rd Ed. 1988, pp 10 and 16-17. I am aware of, have

read, and understand the cited references.

4. To demonstrate that the whole grain waxy wheat of the present application is different from and not obvious based on Alderman I took two portions of whole grain waxy wheat from the same grain lot and origin. One portion was treated per Example 5 of Alderman as described below, the only example wherein he uses a whole grain in his disclosed process. The other portion was treated as per the present application as described below.

5. In the industry whole grain is defined as intact kernels or fractions thereof that contain the three parts of the whole grain, namely the outer bran, the endosperm, and the germ.

6. To test the Alderman process 15 pounds of the whole grain waxy wheat were combined with 1.31 pounds of sugar, 0.44 pounds of salt, and 5 pounds of water. The mixture was cooked at 15 pounds per square inch of steam for 1 hour and 40 minutes in a rotary cooker at 2.3 rpms. The cooked waxy wheat was then dried at 250° F for approximately 40 to 50 minutes to a moisture of 16.1%. Attached Figures 1 and 2 show what the waxy wheat treated according to Alderman looked like at this point. To one of ordinary skill in the art it is clear that the grains are not gelatinized throughout even after this long cooking process. There is a great deal of variety in the degree of gelatinization as can be seen by the presence of numerous white spots in the wheat grains in Figures 1 and 2. The cooked waxy wheat was then tempered per the Alderman procedure for 24 hours. The cooked and tempered waxy wheat was then run through flaking rollers. Attached Figures 3 and 4 show the waxy wheat according to Alderman after it was run through the flaking rollers. It can be seen that the waxy wheat is no longer a whole grain product the bran layer has come off. This is clearly seen in Figures 3 and 4. In addition, the grains are full of fissures and are not whole grains. It is believed that this occurs because the Alderman process teaches milling the grains after cooling and tempering of the cooked waxy grain. When done at this temperature the starches in the grains are at a glass transition state, thus the grains fracture apart and lose their outer bran layer during the milling process. Finally, the milled, cooked, waxy wheat was toasted as per Example 5 of Alderman. The resulting product is shown in Figures 5 and 6. It can clearly be seen that any remaining outer bran layers are lost and

the product is not a whole grain product. In fact, if the process of Alderman were scaled up to a production level the build up of fine bran flakes would likely create a fire hazard in a cereal plant. In addition, there was very little puffing after toasting as can be seen by comparing the untoasted product shown in Figures 3 and 4 with the toasted product in Figures 5 and 6. The cup weight of the toasted product was 58.44 grams, a quite dense product.

7. By way of contrast, the other portion of whole grain waxy wheat was treated per the present application. In a first step 23 pounds of the whole grain waxy wheat was placed in a rotary cooker and steamed at 15 pounds per square inch for 15 minutes at 2.3 rpms. As described in the present application, this steaming process serves to inactivate the lipases, which are believed to make cooked whole grain waxy wheat unstable and subject to rancidity. This steaming process also makes the bran layer pliable. The steamed whole grain waxy wheat was then bumped by passing it through rollers set at 300 mm. The bumping of the uncooked waxy wheat creates small fissures in the bran layer, but does not remove any of it. Then 15 pounds of the bumped waxy wheat was mixed with a slurry of 1.31 pounds of sugar, 0.44 pounds of salt, and 3.0 pounds of water. The fissures allow the slurry to penetrate the whole grain during the cooking process. The mixture was cooked in a rotary cooker at 15 pounds per square inch, 2.3 rpms, for 45 minutes. During the cooking process according to the present invention the starches in the whole grain waxy wheat tend to become glue like and hold the outer bran layer onto the whole grain. The cooked whole grain waxy wheat was then dried at 250° F for approximately 20 minutes to a moisture of 16.4%. Attached Figures 7 and 8 show what the whole grain waxy wheat treated according to the present invention looks like at this point. The contrast to Figures 1 and 2 is obvious; here the whole grain waxy wheat is fully and uniformly gelatinized. Unlike the Alderman process grains treated according to the present invention retain their entire bran layer, which is clearly visible in Figures 7 and 8. Next the warm, dried whole grain waxy wheat was roller milled while at a temperature of from 100 to 120° F. The milled grain was cooled and then tempered for 24 hours. In the process of the present invention roller milling the cooked whole grain waxy wheat when it is warm ensures that the starches are above the glass transition state so they are pliable and can be formed without shattering.

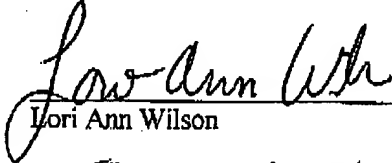
This is clearly seen in Figures 9 and 10 which show the milled whole grain waxy wheat treated according to the present invention after the tempering step. The grains are clearly whole with intact bran layers. This is in stark contrast to the shattered bran less product milled according to the Alderman process as shown in Figures 3 and 4. Finally, the tempered whole grain waxy wheat was toasted as above. The resulting toasted product according to the present invention is shown in Figures 11 and 12. In contrast to product prepared according to Alderman, product prepared according to the present invention maintains its bran layer, endosperm, and germ. The fissures created during the bumping process allow the whole grains to toast up to a much larger size than is possible in the Alderman process. Of course because of the expansion the entire outside of the whole grain is not covered by bran; however none of the bran is lost, instead the grain expands at the fissures. The cup weight of the toasted whole grain product prepared according to the present invention was also much lower at 48.64 grams. Thus the whole grain product according to the present invention had a cup weight that was only 83% as much as the Alderman product, meaning the present invention produces a more buoyant product.

8. A comparison of the storage stability of the waxy wheat prepared according to Alderman versus the whole grain waxy wheat prepared according to the present invention is currently being conducted. The results of these longer term studies are not yet available; however this declaration may be supplemented with these results when available.

9. In summary, even if one of ordinary skill were to follow the teachings of the Alderman process using a waxy wheat after reading Nakamura et al. and the book Wheat Chemistry and Technology one could not produce a "Cooked, buoyant, whole grain waxy wheat comprising no more than about 10% amylose starch, and less than 20% by weight protein characterized by being gelatinized throughout and storage stable in the absence of additives that inhibit development of rancidity" as required by claim 1 of the present application. Alderman alone or in combination with the other cited references does not make the present whole grain waxy wheat product obvious.

10. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information are believed to be true; and further that these statements were made with the knowledge that willful and false statements and the

like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or a patent issued thereon.


Lori Ann Wilson
9-02-2004
Execution Date

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USA

CERTIFICATE OF MAILING BY "EXPRESS MAIL"

I hereby certify that the enclosed **Declaration Under 37 C.F.R. § 1.132** is being deposited with the United States Postal Service as Express Mail, postage prepaid, in an envelope as "Express Mail Post Office to Addressee", **Mailing Label No. EV520886177US** and addressed to Mail stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on **September 2, 2004**.

Sandra Barry
Sandra Barry

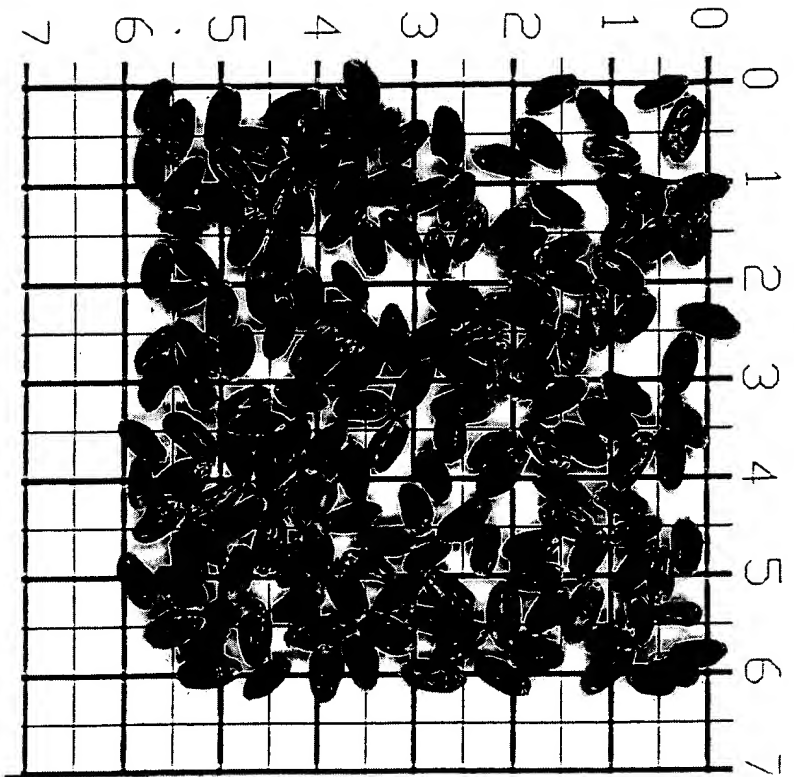


FIG-1

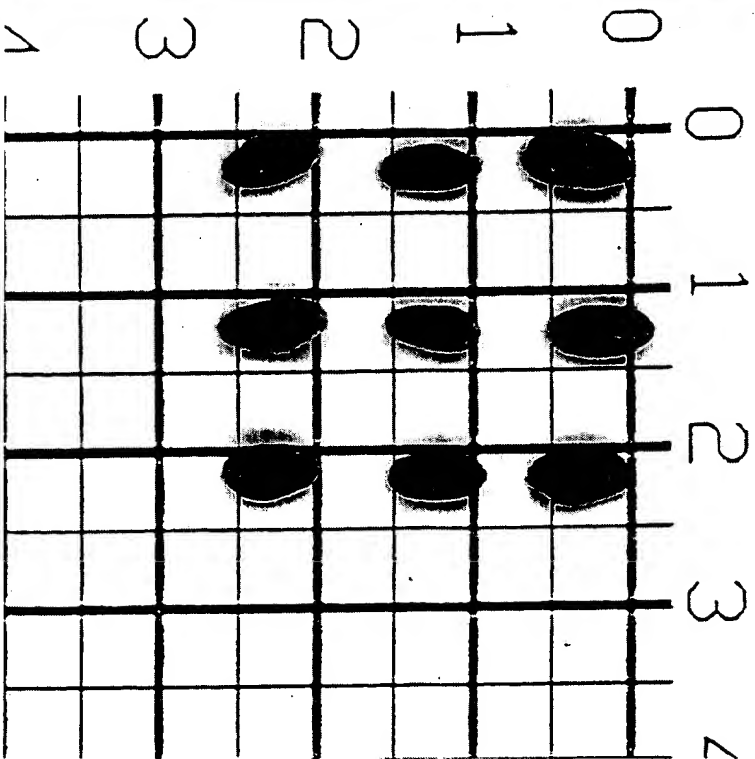


FIG-2



FIG-3

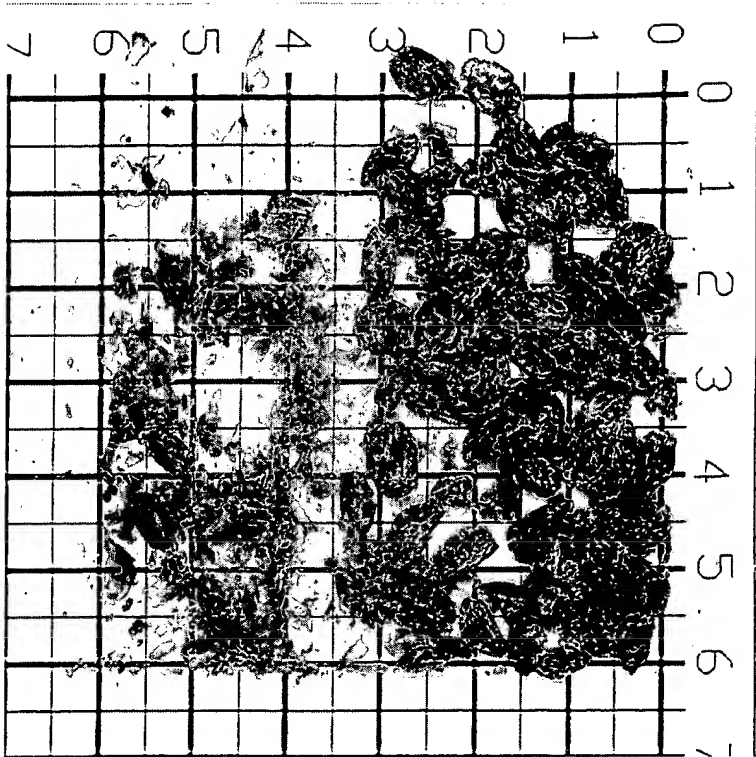
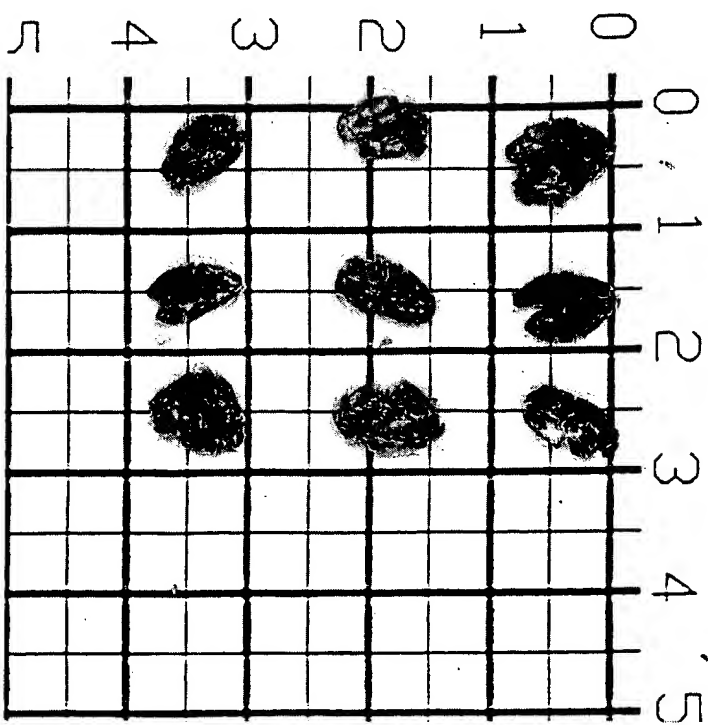


FIG-4



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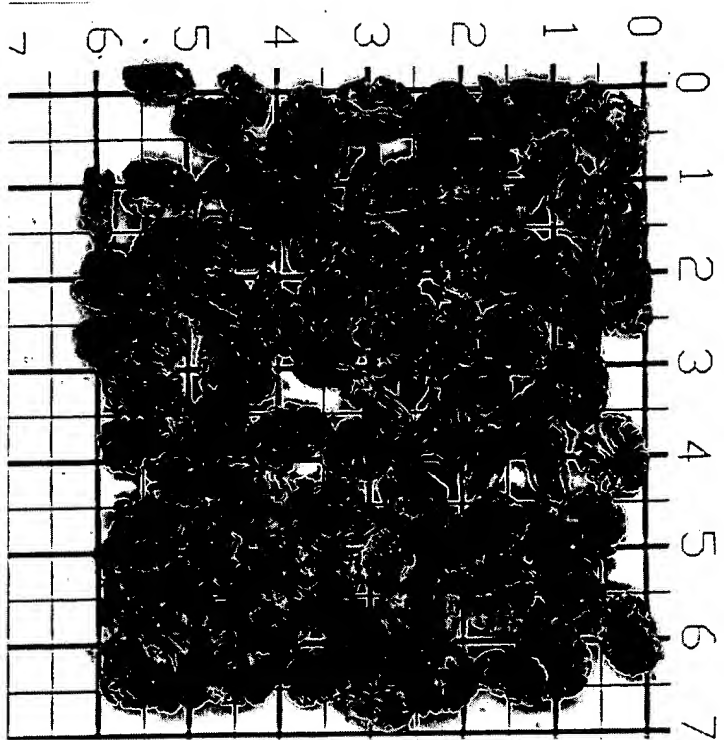


FIG-5

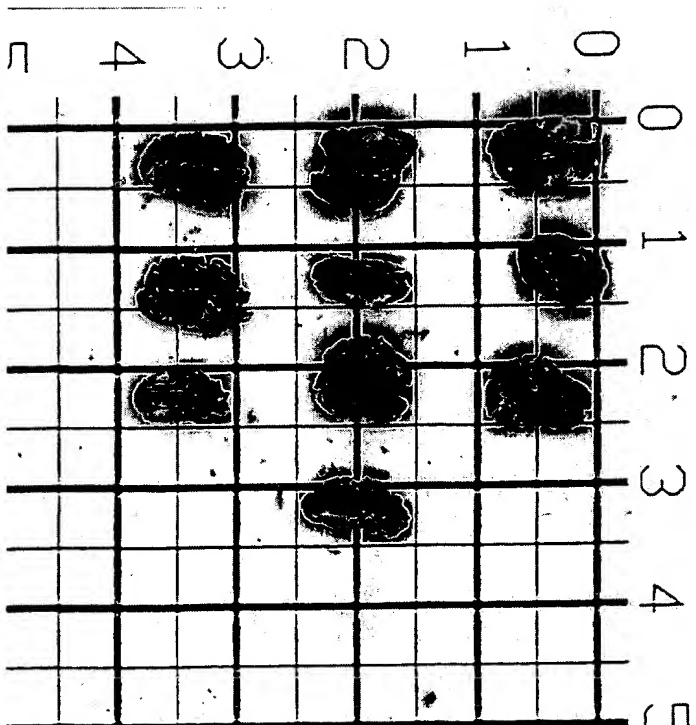


FIG-6

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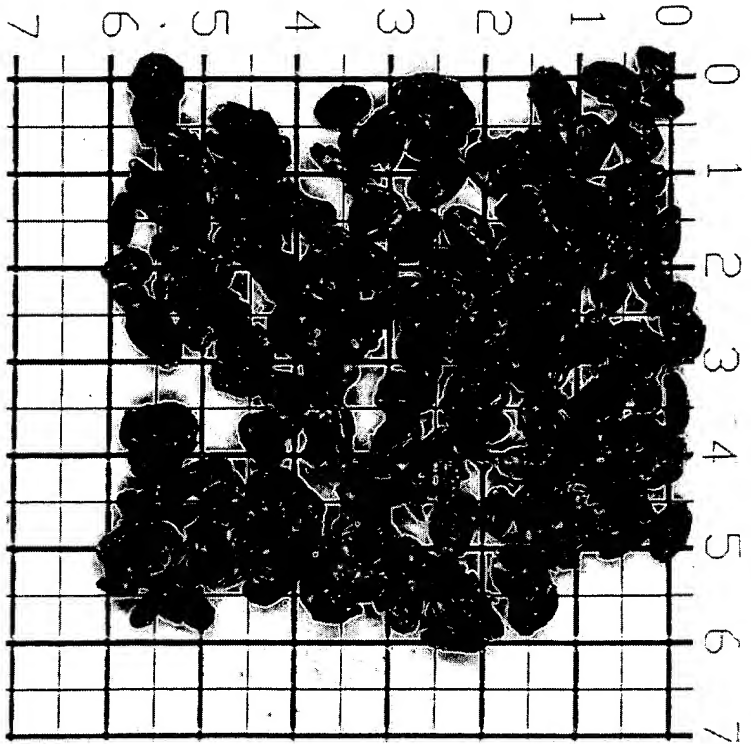


FIG-7

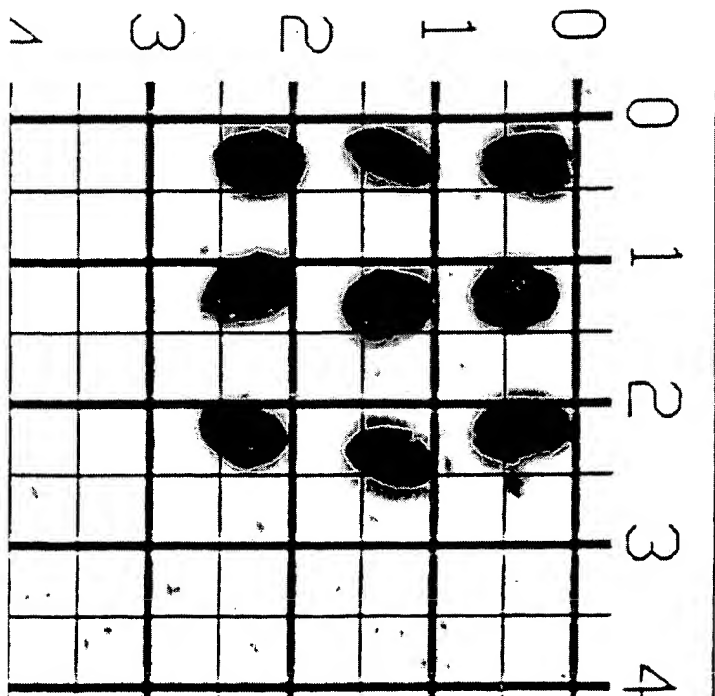


FIG-8

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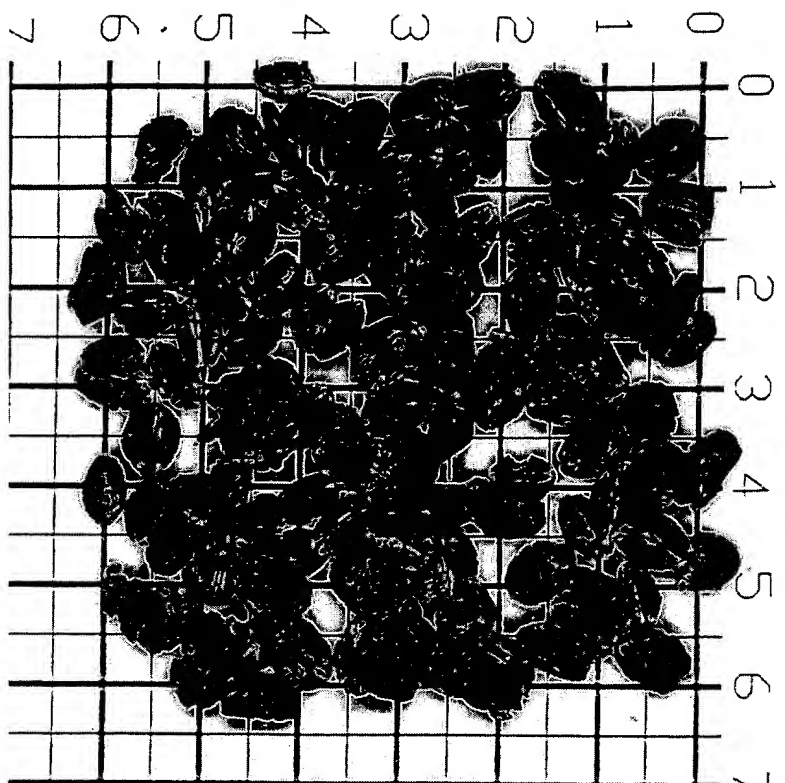


FIG-9

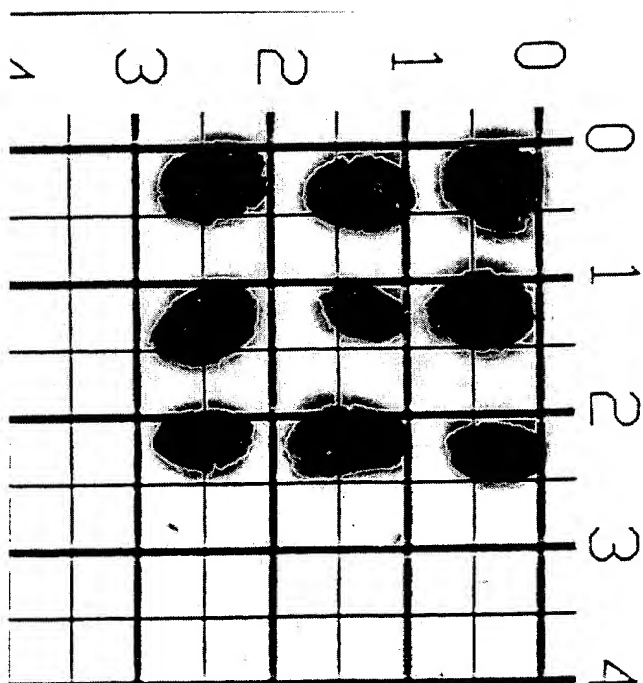


FIG-10

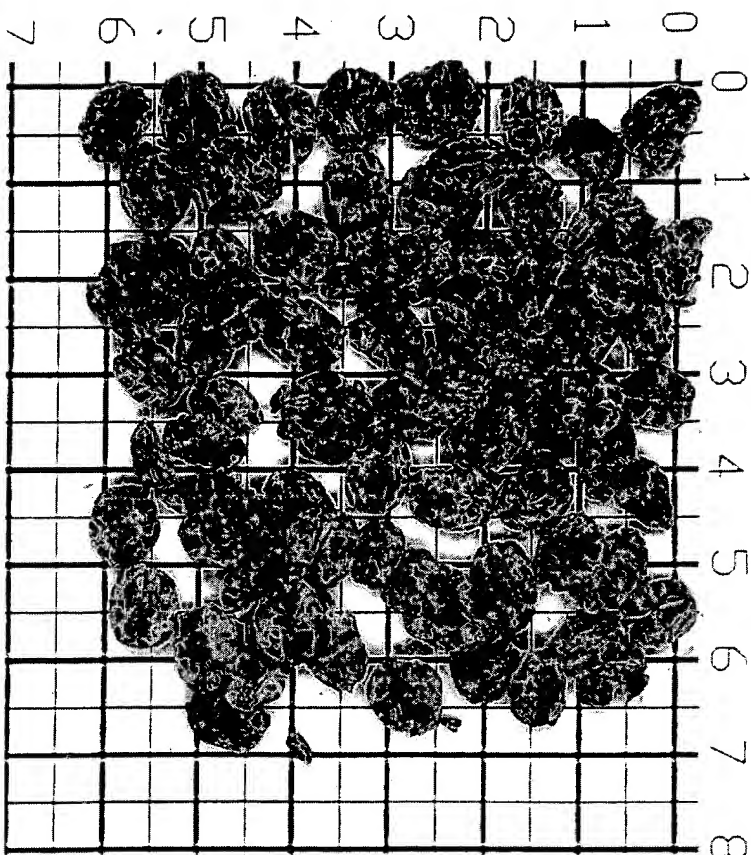


FIG-11

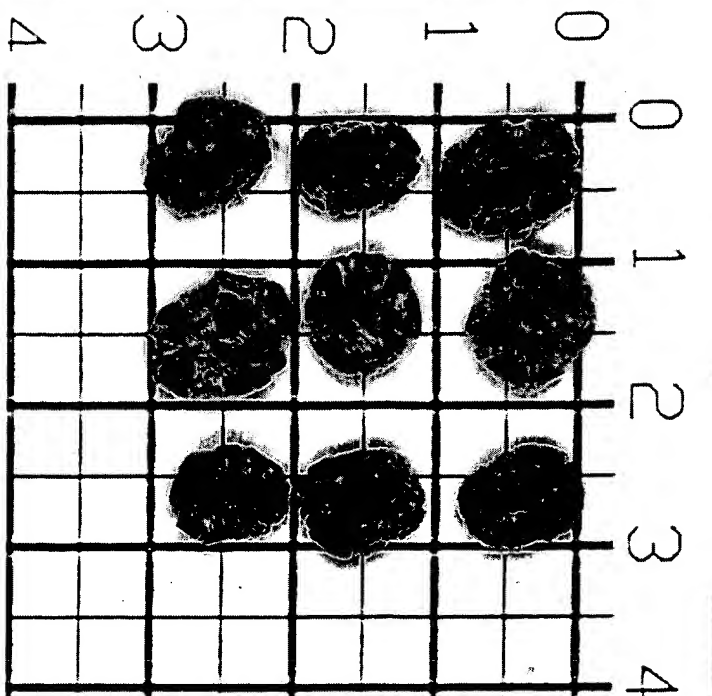


FIG-12